THE LOTUS LEAF

A SECTION OF THE LOTUS MAGAZINE DEVOTED TO
THE INTERESTS OF THE AUTOMOBILE INDUSTRY

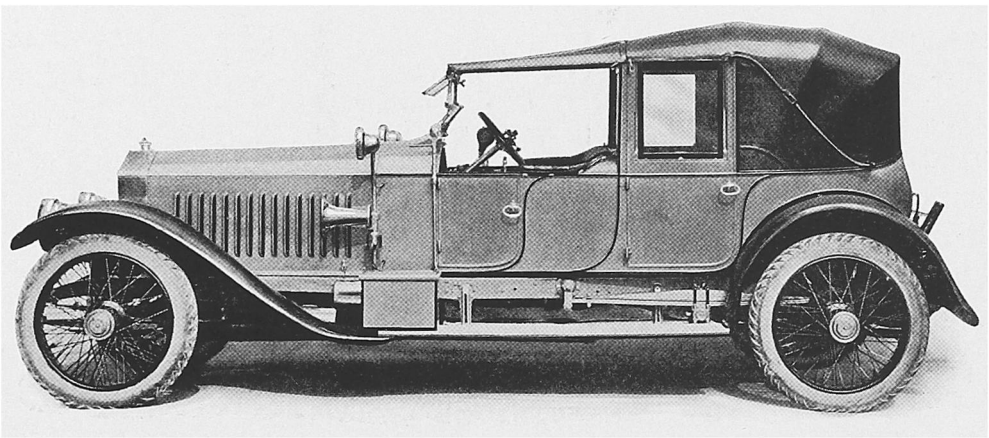
Evolution and Standardisation of the Automobile

WHO invented the automobile, as we know it—not the wind-driven or steam propelled horseless vehicle, but the vehicle driven by a gasolene engine? According to F. A. Talbot, author of "Motor Cars and Their Story," all doubts on this score would seem to have been set at rest by recent investigations. He unhesitatingly assigns to the Grand Duchy of Mecklenberg, which sounds like Offenbach opera bouffe, the honour of the invention, through the perseverence and ingenuity of one of the citizens of Malchin, Siegfried Markus, who died on July 1, 1899. He adds that a benzine-driven vehicle, designed and built by this pioneer, was shown at the Vienna Exhibition of 1873, and is now in the possession of the Austrian Automobile Club.

In contriving this original benzine-motor-driven car, Markus took an ordinary hand cart, eliminated the hind wheels, and substituted the two flywheels of a benzine motor. He generally tested it on the roads at night, accompanied by friends invited from a neighboring cafe. Finally the police intervened and forbid him to use it on the highways, because it was a public nuisance. [Railways were similarly forbidden, at first, in Bavaria, because it was feared that people would be driven insane by the speed of passing trains.]

The generally prevailing idea that the automobile is a product of the closing twenty-five years of the nineteenth century, is true so far as our acceptation of the word is concerned. But the earliest known picture of a horseless vehicle is to be found in an Italian manuscript dealing with the "Art of War" written in 1430 and now preserved in the Uffizi Museum at Florence. The first mention of such a vehicle actually having been constructed and submitted to practical tests is recorded in the chronicles of the German city of Nemming, where it is stated that in the year 1447, a covered carriage, which was

ROLLS-ROYCE



IT is significant of the trend of the times, as well as an unqualified tribute to the beauty, dignity, and supremacy of the world's finest motor car, that LORD KITCHENER, when on his way to the Guildhall on July 16th to inaugurate the great recruiting rally, drove through the city streets, lined with appreciative crowds, in a ROLLS-ROYCE.

ROBERT W. SCHUETTE

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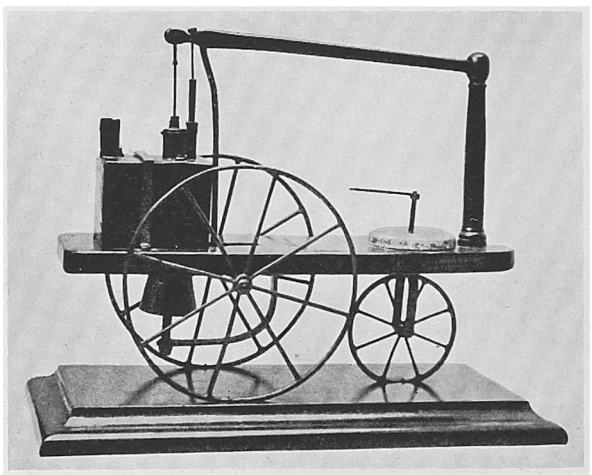
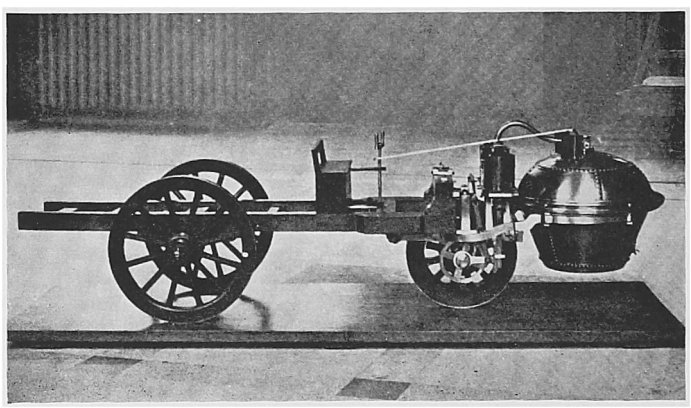
not drawn or propelled by any animal power, travelled from the city gate to the market-place and back with its designer seated within. An Italian engineer, Robert Balthurio, designed a fearsome looking motor-car about 1460, which depended for its energy upon the wind. The outer extremities of its shaft carried a four-bladed wind mill, which, through the medium of its pinions, caused its rotary motion to be transmitted by intermediate cog-wheels to the road wheels, thus forcing the carriage along. This development led other fertile minds to evolve strange looking vehicles fitted with sails like a ship. The Prince of Orange acquired one of these carriages, in which he was able to travel at a speed of thirty miles an hour.



The First Motor Car built in England, about 1781

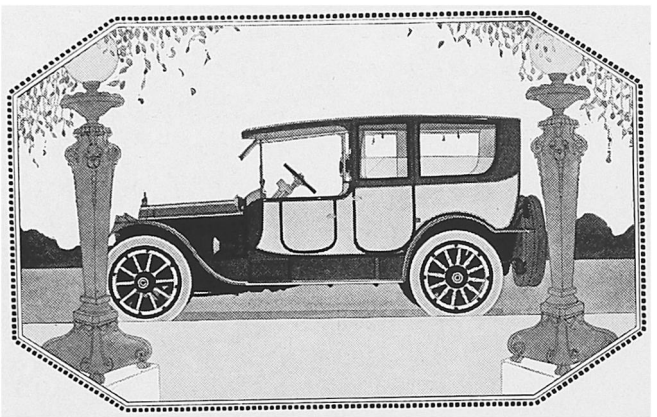
A French military engineer, Nicholas Joseph Cugnot, after infinite labour, produced a carriage propelled by steam in 1769. Two years later the French Government commissioned this industrious military engineer to build a steam motor-car to be used for the haulage of artillery. Cugnot's perseverence and ingenuity aroused the interest of Napoleon who did not fail to recognize the possibilities of such a steam-car in military operations and who endeavoured to adapt it to this purpose. As a reward for his industry Cugnot was pensioned by Napoleon. Cugnot's only essay on his invention is even more topically interesting today than at that time. For it was entitled "The Use of Automobiles in War."



The First Self-propelled Road Vehicle—Cugnot's Steam-driven Carriage which excited Napoleon's interest

In the course of the twelve years, 1824-36, an Englishman, Walter Hancock, brought out no fewer than nine steam-driven coaches. A kind of mild motor boom was created by their appearance. One car was built for the London and Brighton Steam Carriage Company, another for the London and Paddington Steam Carriage Company, and a third vehicle for service in Vienna, but the money not being forthcoming, the car was put into operation between Stratford, Islington and London.

The impetus which resulted in the automobile as we know it came from the possibility of using a motive-power different from steam. The stationary gas engine had become well established and the oil engine, using a heavy liquid fuel, had attracted much attention. The question



The distinctive lines and detailed refinement of

Packard TWIN-SIX

Enclosed Cars

crown the superior performance of the twelve-cylinder motor

Low, graceful, luxurious in appointment and harmonious in design — Packard equipages for smart usage reveal in artistic worth the same full measure of accomplishment that has been attained in a mechanical sense.

In standard finish, they conform to the dictates of dignity and good taste, and, when desired, an opportunity is afforded for the expression of individual preferences in colors, fabrics and fittings.

Their silent, effortless operation in any situation, and their distinctive elegance and charm, bring to the discriminating owner a keener enjoyment and a motoring comfort hitherto unknown.

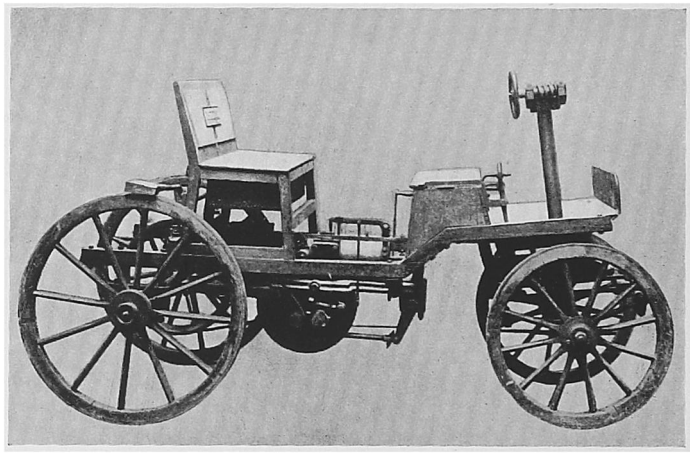
PACKARD MOTOR CAR COMPANY, DETROIT, MICHIGAN

Ask the man who owns one

of vaporising the oil easily and quickly led inventors to experiment with distillates and at last the spirit which is now universally known as petrol or gasolene, but which at that time merely was a waste product of the oil-refineries, was found to constitute an ideal fuel.

It is amusing to note that one of the earliest experimenters with a gasolene driven car almost immediately came into collision with the antiquated road laws of England.

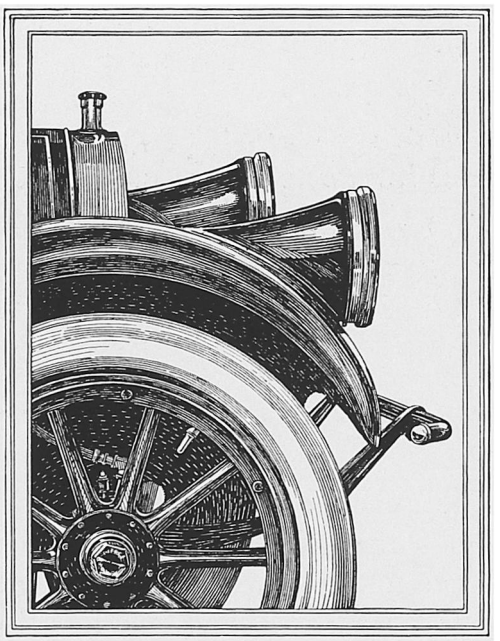
November 1st, 1895, Edward Butler, while running through the town of Farnham at about eight miles an hour was arrested. He was haled before the authorities on the double charge of not having a traction-engine license and of not being preceded by a man with a red flag. The Surrey County Council considered the evidence so grave that they sent a barrister to prosecute who expatiated upon the great danger of a machine worked by explosions.



This is claimed to be the First Gasolene Motor Car. Completed by Siegfried Markus in 1875

Scarcely had the automobile been born before the first race, if such it may be termed, was run. This was in 1894 for the eighty miles between Paris and Rouen. The following year saw the Paris-Bordeaux-Paris race over a distance of 744 miles. Motorists grew more ambitious. Why should there not be a race over one thousand miles? These enthusiasts had their wishes gratified in 1896, when a race from Paris to Marseilles, a route of 1,077 miles was inaugurated. The results were highly promising, although the automobile was still in its swaddling clothes and bore about as much resemblance to the motor car of today as the Rocket did to a full-fledged modern locomotive.

In developing the automobile the principle of standardisation—severe standardisation, in fact—has been the rule. The motor car is the apotheosis of standardisation, which by the automobile manufacturer has been developed into a fine art. Every part of the vehicle from the smallest nut to the colour of the body is standardised. The entire plant, mechanical and human, is concentrated upon the production of integral pieces by the thousand. The testing and measurement of the parts to ascertain whether they conform to the specifications is reduced to machinelike exactness and there is no waste of time, no "chic" work to make things fit. Entering the market for his raw material, the manufacturer, able to buy in enormous quantities, secures the very rockbottom prices. Economy in purchasing the raw material, however, is only one step. Time and labour-saving devices and system go hand-in-hand with standardisation. The most progressive motor manufacturing establishments are

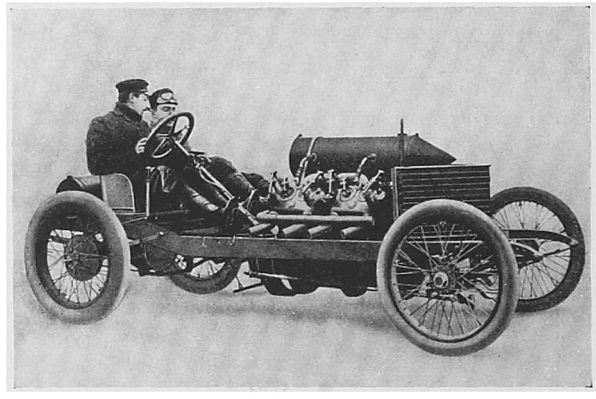


Pierce-Arrow

The searchlights on the mudguards, so characteristic of Pierce-Arrow Cars, have much to commend them. They light more of the road; reach farther around corners; relieve the lamps of jars; give a line of beauty to the mudguards not otherwise easily obtained.

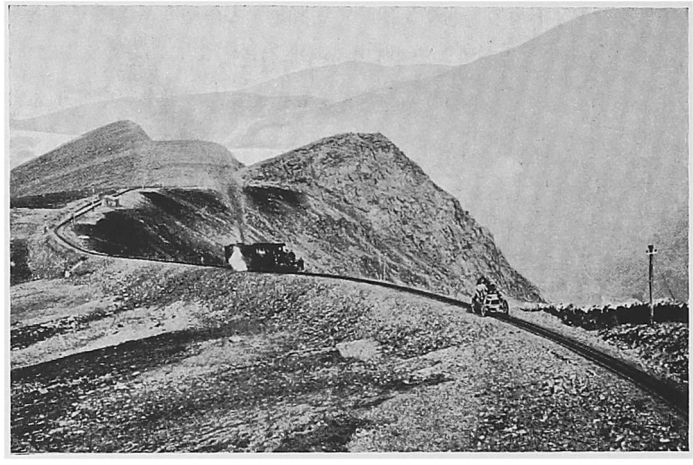
The Pierce-Arrow Motor Car Company Buffalo, N.Y.

practically machines in themselves. Wherever time or labour or both may be saved there is no hesitation. As a result many highly ingenious appliances are found in automobile factories with the result that cars of a high grade can be turned out at prices considerably lower than they would be, were the principles of standardisation not so well understood.



The First Gasolene Car to travel at two miles a minute—Daytona Beach, Florida, January, 1906

In order to secure the best results from the perfection of standardisation, the manufacturer spares no expense. A dry kiln for storing over a million feet of lumber for the bodies may represent an enormous outlay. But if the manufacturer sees his way clear to profit by it, he does not hesitate. He may have a complete plant today doing its work with absolute satisfaction and the whole running as smoothly as a clock. Tomorrow some one brings along an idea that will improve today's perfection. Let it but secure the manufacturer any gain in time, labour and expense with equal quality of work, and it is promptly adopted although it may entail the scrapping of other machinery which it has cost a fortune to install. During the past few years experience, combined with engineering skill, have brought the automobile to a high standard of perfection. The motor runs as silently as a four-hundred day clock; the engine practically emits no noise; perfection of mechanism has reduced changing speed to a click; the use of stronger constructional material has enabled lightness and grace in general appearance to be combined with strength; while improvements in methods of lubrication enable the numerous parts to run as quietly and harmoniously together as if padded with velvet. Vibration has been eliminated; the modern engine betrays no evidence by means of sound that it is running, even at the highest speeds, save a soft musical hum. A glass filled with water to the brim may be stood on the bonnet, but not a drop will be shaken out by the revolutions of the motor, while a penny will stand on edge in the same place as if it were glued to the spot. Such is Mr. Talbot's tribute to the modern motor car.



Mountaineering by Motor Car, Ascending Snowdon, showing Pass of Llanberis, Wales

Naturally there are many uses to which an automobile can be put—reaching the city from your country

LUXURY OF THE SMALL CAR

POSSIBLY due to their greater devotion of time to the smaller niceties, a form of motor car has been developed abroad worthy of notice. It is the light model of the skilled maker. Nearly all of the foreign names that are associated here with only large and powerful touring or town cars, are as familiar on the other side for their "voiturettes" and smaller machines.

Until very recently, American standards in automobiles have been largely gauged by weights and measures. Size and conformative weight seemed accepted as necessary to an automobile.

The Salon of two years ago caused the first general awakening of interest to the possibilities of light construction. The many ingenious arrangements of seating and refinements of structure made a lasting impression.

Only within the past year have American designers taken pattern from European practice, in producing light models for definite use as auxiliaries to large motors of high quality. Attention has been given, in detail and comfort, to make the smaller cars really comparable in all respects other than size.

This new viewpoint of both makers and users, is coupling good taste and refinement in motor conveyance with the undoubted convenience a personal machine affords.

home; a quick drive to the railway station; a means of easily covering the distance to your country club; and for tours, short or long. In fact, the automobile converts every highway into the equivalent of a railroad.

Climbing a stiff grade through deep snow in the Middle States on the way to San Francisco

One of the most interesting uses to which the automobile has been put, was probably interrupted by the war, but is worth recording. It occurred in France and is typically French. This was a fleet of thirty-six automobiles for conveying a complete theatre on tour—apparatus as well as personnel. The stage and apparatus were to be a replica of the Theatre Antoine. At the same time the artists were to be provided with automobile accommodation equal to that found in first-class hotels. The scenery and properties, the seating arrangements, the canvas theatre, the electric power plant, the administration offices and the coaches for the artists demanded the division of the travelling equipment into eight trains. The whole installation not only had to be complete in every detail so that the theatre might be established anywhere, but it had to be duplicated so that as one installation was closing, the second could get under way, and with the artists aboard could pass on to the next stop. The motor cars for the artists were to be well ventilated and luxuriously appointed homes on wheels.

The Actors' Dressing-room Car of the Théâtre National Ambulant Gémier

The canvas theatre had to be erected upon lines quite different from the ordinary circus tent. For within the structure as clear a view of the stage is had as if it were built upon the cantilever principle. The stage itself was a duplicate of that at the Theatre Antoine so far as conditions would permit. The proscenium opening was 23 feet with a depth of 33. The stage was built up partially of cars which fitted into exact position side by side. As for the scenery, instead of having each cloth upon a separate pair of rollers, the whole of the back cloths required for the various scenes in the repertoire were painted upon a continuous panoramic cloth wound upon two rollers. These were set in a vertical position on either side of the stage and revolved until the required back cloth for the scene was reached. The wing pieces were handled in a similar manner so

that the whole scenic outfit could be set within a small compass.

The living cars were most comfortable while other vehicles which served as dressing rooms for the artists also were well equipped. Two cars drawn up on either side of the entrance and covered by an awning formed an excellent foyer, while another served as a box office. Two cars also were set in position on either side of the proscenium opening and then the fronts were let down revealing an interior which for furnishings and general appointments rivalled the boxes of the leading Parisian Theatres. Altogether some 1,600 people can be seated at a performance.

The technical side was no less comprehensive. The electrical generating installations carried in separate cars supplied current for the lighting of the stage, the auditorium, entrance, dressing rooms and other portions in accordance with the very latest principles. In addition one car was set aside as a general workshop, replete with a variety of tools to effect repairs of all kinds.

Another automobile theatrical experiment, also made in France, related to a moving picture theatre, no doubt it, too, has been suspended by the war. A Frenchman adapted several omnibuses to "movie" requirements. The motor vehicles transported the canvas tent, the setting arrangements and paraphernalia required for portraying moving picture plays. When the picture theatre is set up the bus motors were utilized to drive the electric plant for the supply of current to the projecting lanterns, the lighting of the building and the emblazoning of the fantastic façade.